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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/871,567

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David Hernandez

1124

7590

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EXAMINER

GREY, CHRISTOPHER P

ART UNIT

PAPER NUMBER

2667

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/871,567	<b>Applicant(s)</b> HERNANDEZ, DAVID	
	<b>Examiner</b> Christopher P Grey	<b>Art Unit</b> 2667	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 May 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4 and 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dulin et al. (US 6567387) in view of Cimini, Jr. et al. (US 6556557)

Claim 1 Dulin et al. (Dulin 'hereinafter') discloses sub-dividing data units into sub protocol data units and transmitting them to a subscriber unit (Col 2 lines 56-65 and see fig 6). Dulin does not disclose comparing the peak output of a transmission data block to a constant based on the dynamic range of a power amplifier.

Cimini, Jr. et al. (Cimini hereinafter) discloses a calculated Peak to average power ratio (peak output) being compared to a Peak to average power ratio (constant) stored in memory (Col 6 lines 25-51). Cimini discloses determining whether the calculated PAP is greater than or less than the PAP stored in memory.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the dividing of data into sub-blocks as disclosed by Dulin, with the calculation and comparison as disclosed by Cimini. The motivation for this modification is to minimize the PAP of the transmitted signal (Col 30 lines 31-36).

Claim 2 Dulin discloses a receiver with control circuitry being able to re-construct the sub-protocol data units (Col 8 line 65-Col 9 line 13). It would have been obvious to

one skilled in the art to have some form of indication within the header (elements 605 and 610 in fig 6) of the data being sent, indicating the need for re-construction.

Claim 3 Dulin discloses a number of different indicators clearly distinguishable from one another (Col 8 lines 35-62).

Claim 4 Dulin does not disclose the data being binary and the indicator being non-binary, however Cimini discloses a number of data blocks being assigned a phase factor that is binary (Col 7 lines 16-29). It would have been obvious to one skilled in the art to send the data/indicator in a binary or non-binary form.

Claim 6 Dulin discloses a number of different information, including indicators and sub protocol data units being transmitted together (Col 8 lines 40-64 and see fig 5 and 6).

Claim 7 Dulin discloses a Reed Solomon encoder (Col 13 lines 27-34), which one skilled in the art can appreciate performs error correction through adding redundant bits to fill a transmission block.

Claim 8 Dulin does not disclose segments from different user blocks being transmitted together in the same transmission data block.

Cimini discloses a partial transmit sequence where disjoint sub-blocks are combined (Col 2 lines 30-35). It would have been obvious to one skilled in the art at the time of the invention to modify the teachings of Dulin with the implementation of the Reed Solomon encoder as disclosed by Cimini. The motivation for this is to minimize the PAP (Col 2 lines 30-35).

Claim 9 Dulin discloses a frame number byte that indicates the frame number to be transmitted (Col 8 lines 40-47).

Claim 10 Dulin discloses a receiver with control circuitry being able to re-construct the sub-protocol data units (Col 8 line 65-Col 9 line 13). One skilled in the art can appreciate some form of indication within the header (elements 605 and 610 in fig 6) of the data being sent, indicating/initiating the need for re-construction.

Claim 11 Dulin discloses a receiver with control circuitry being able to re-construct the sub-protocol data units (Col 8 line 65-Col 9 line 13). Dulin also discloses a frame number byte that indicated the frame number to be transmitted (Col 8 lines 40-47). It would have been obvious to one skilled in the art that reconstruction is based on the frame number byte.

Claim 12 Dulin discloses transmitting sub-protocol data units and one skilled in the art can appreciate the notification and furthermore the notification being combined with either sub protocol data unit, and the other sub protocol data unit being transmitted individually.

Claim 13 Dulin does not disclose the next data block being transmitted comprising segments from another user data.

Cimini discloses a partial transmit sequence where disjoint sub-blocks are combined (Col 2 lines 30-35). It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the teachings of Dulin with the transmission of disjoint blocks as disclosed by Cimini. The motivation for this is to minimize the PAP (Col 2 lines 30-35).

Claim 14 Dulin does not disclose all segments having a power output less than the dynamic range of the power amplifier, however, Cimini discloses comparing a current PAP value to a stored PAP value and selecting the lowest possible value (Col 6 lines 25-51).

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dulin et al. (US 6567387) in view of Cimini, Jr. et al. (US 6556557) in further view of Vijayen et al. (US 2001/0030939)

Claim 5 The combined teachings of Dulin and Cimini disclose a phase factor  $\{+1, -1\}$  being multiplied by data (Col 7 lines 16-29) but do not teach an indicator of 0, however, Vijayen et al. (Vijayen 'hereinafter') discloses each symbol containing a value in the first set of 0, in a predetermined bit (Page 4 [0047]). It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Dulin and Cimini with the teachings of Vijayen, who discloses a symbol value of 0, in order to differentiate between indicators and data.

3. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dulin et al. (US 6567387) in view of Cimini, Jr. et al. (US 6556557) in further view of Wu (US 6104760)

Claim 15 The combined teachings of Dulin and Cimini do not disclose the segments being defined by bit positions. However Wu discloses the frames being broken in a predefined format. It would have been obvious to one of the ordinary skill in the art to

modify the combined teachings of Dulin and Cimini with the predefined format disclosed by Wu. The motivation for this is to eliminate clipping (Col 2 lines 22-49)..

Claim 16 The combined teachings of Dulin and Cimini do not disclose the indicator being placed in predetermined positions, however, Wu discloses sending a notification in the form of a special predefined data (Col 2 lines 22-49). The motivation is the same as that for claim 15.

Claim 17 The combined teachings of Dulin and Cimini do not disclose the receiver looking at a majority of the indicators in the transmitted data blocks as a representative sample to diminish the effects of receive errors.

Wu discloses the receiver receiving indications, and furthermore receiving two consecutive frames, eliminating clipping (receive errors). It would have been obvious to one of the ordinary skill in the art to modify the combined teachings of Dulin and Cimini with the teachings of Wu, in order to diminish receive errors (Col 2 lines 22-49).

4. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dulin et al. (US 6567387) in view of Cimini, Jr. et al. (US 6556557) in further view of Wu (US 6104760) in further view of Tammaru (US 3950616)

Claim 18, 19 The combined teachings of Dulin, Cimini and Wu do not disclose the receiver comparing groups of segments to determine the type of indicator, however, Tammaru discloses a receiver comparing pairs of bits occupying a corresponding bit position (claim 19) in order to detect a control signal (indicator) (Col 1 lines 40-62 and Col 2 lines 20-34). It would have been obvious to one of the ordinary skill in the art at

the time of the invention to modify the combined teachings of Dulin, Cimini and Wu, with the comparison disclosed by Tammaru. The motivation is to increase the reliability of detecting a framing signal (Col1 lines 40-59).

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimini, Jr. et al. (US 6556557) in view of Dulin et al. (US6567387) in further view of Tammaru (US 3950616)

Claim 20 Cimini, Jr. et al. (Cimini hereinafter) discloses a calculated Peak to average power ratio (peak output) being compared to a Peak to average power ratio (constant) stored in memory (Col 6 lines 25-51). Cimini discloses determining whether the calculated PAP is greater than or less than the PAP stored in memory. Cimini also discloses a PTS approach, where data blocks are partitioned into a number of disjoint sub blocks (Col 2 lines 30-36). Cimini also discloses an SLM approach that uses full length IFFT's in order to transmit as much data per sub block( Col 5 lines 23-44). Cimini does not disclose interspacing with zeroes and Cimini does not disclose forming comparison groups in the receiver to determine which received bit positions contain user data and which contain zeroes.

Dulin discloses a Reed Solomon encoder (Col 13 lines 28-34), which is well known in the art to insert redundant bits (zeroes) into blocks of data. The motivation to modify the teachings of Cimini, with the Reed Solomon encoding disclosed by Dulin is to minimize the error rate of the transmitted data (Col 13 lines 28-34). The combined



teachings of Cimini and Dulin do not disclose forming comparison groups in the receiver to determine which received bit positions contain user data and which contain zeroes.

Tammaru discloses a receiver comparing pairs of bits occupying a corresponding bit position (claim 19) in order to detect a control signal (indicator) (Col 1 lines 40-62 and Col 2 lines 20-34). It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the combined teachings of Cimini and Dulin, who disclosed a PTS approach and a Reed Solomon encoder, with the formation of comparison groups as disclosed by Tammaru. The motivation to modify the combined teachings of Dulin and Cimini with the teachings of Tammaru, is to increase the reliability of detecting a framing signal (Col1 lines 40-59).

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) Cimini et al. (US 5914933) discloses a communication system for the transmission of blocks of data having digital data symbols in each block. Cimini also discloses distributing data symbols over a plurality of clusters.

(b) Andre (US 6028486) discloses a comparator connected to a power amplifier. Andre discloses the comparator comparing a power output to a threshold.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey  
Examiner  
Art Unit 2667

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1.15.05

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PRIMARY EXAMINER 2/16/2005